

Deutsches Patent- und Markenamt

München, den 28. Mai 2001

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Aktenzeichen: 195 01 539.8-35

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Von Einsprechenden werden gemäß § 125 Abs. 1 des Patentgesetzes nur Fotokopien oder Abschriften solcher Druckschriften verlangt, die im Deutschen Patent- und Markenamt nicht vorhanden sind.

Anlage(n):
1 Einspr. i. v. 05.10.2000 eing. a. 05.10.2000
mit Anlagen

Patentabteilung 35

Auf Anordnung des Vorsitzenden - Berichterstatters
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☒ Bei Sammelempf.-Bek.: die Übersendung geschieht zum Zwecke der Zustellung
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MAIKOWSKI & NINNEMANN COMMUNICATION OF 5.10.2000.

RE GERMAN PATENT 195 01 539

In the name of and on behalf of Infineon Technologies AG, 81669 Munich, DE we hereby oppose the above patent and petition

1. the revocation of the patent,
2. the forwarding to the opponent prior to the issue of a decision of any rejoinder from the patentee,
3. a personal consultation if the petition to revoke the patent cannot immediately be accepted.

A general power of attorney has been filed at the German Patent and Trademark Office and a copy thereof is enclosed. As soon as its number has been provided, this will be forwarded to you.

Citations:

- D1 : EP-A 437 161
- D2 : US-A 5,113,317
- D3 : DE-G 84 22 793
- D4 : DE-A 43 33 387
- D5 : DE-A 36 40 099
- D6 : EP-A 630 174
- D7 : DE-A 39 27 752
- D8 : US-A-5,228,188

Moreover, the documents considered when evaluating patentability and appearing under 56 on the front page of the patent specification are introduced into the opposition proceedings.

The above petition is substantiated in the following way.

The attacked patent is to be revoked according to article 21 of the Patent Act, because its subject matter is unpatentable according to articles 1 to 5 of the Patent Act.

I. The alleged invention

According to the preamble of the independent claims 1 and 10 German patent 195 01 539 C2, hereinafter also called litigious patent, relates to an electrooptical transmit-receive module with a first casing part, a second casing part and a circuit card held between the first and second casing

parts. The circuit card has a first terminal or connecting element by means of which the circuit card is electrically connected to a main or master circuit card. Connection to the main circuit card takes place by means of a second terminal or connecting element located on the main circuit card.

The circuit card also has a laser diode module and a photodiode module, the former converting a digital signal into an optical signal and the latter an optical signal into a digital, electric signal.

The litigious patent refers to JP-A-3-218134 as prior art disclosing such a module.

The indicated problem of the invention is to provide a module which, whilst ensuring a good transmission quality, can be manufactured in a compact format with a high design flexibility, at low cost and with high reliability (cf. column 2, lines 48 to 53).

According to the characterizing part of claim 1 published with the litigious patent specification this problem is solved in that the first connecting element is constructed as a coupling part with at least one planar outer surface with which it is located on a main surface of the circuit card.

According to the characterizing part of independent claim 10 published with the litigious patent specification said problem is solved in that the first casing part and the second casing part are fitted to the main circuit card with fastening or attaching means.

The litigious patent discloses nothing with respect to claim 1 as to what is to be achieved with this teaching. In connection with claim 2, it can indirectly be gathered from the description (cf. column 9, lines 32 to 59), that the demands with respect to the positioning precision of the individual elements is to be reduced. By reducing the positioning precision it is possible to reduce the demands concerning the precision of the parts inserted in the circuit card and the connecting element.

II. Feature analysis

To facilitate understanding, claims 1 and 10 are broken down into the following feature analysis.

The electrooptical transmit-receive module according to claim 1 has the following features:

1. a first casing part,

2. a second casing part,
3. a circuit card held between the first and second casing parts.

The circuit card comprises:

4. a first connecting element, in which
5. a main circuit card is provided with a second connecting element with which the first connecting element is electrically connected,
6. a laser diode module, which is controlled by a digital electrical signal and converts the digital signal into an optical signal, the digital signal being applied by means of the second connecting element to the laser diode module,
7. a photodiode module, which receives an optical signal from an optical fibre connected thereto and which converts the optical signal into a digital electrical signal, the latter being transmitted by means of the first connecting element to the main circuit card.

- preamble of claim 1 -

8. The first connecting element is constructed as a coupling part.
9. The coupling part has at least one planar outer surface.
10. The coupling part is located with the planar outer surface on a main surface of the circuit card.

- characterizing part of claim 1 -

The independent claim 10 has the identical features 1 to 7 of the preamble and has the additional characterizing feature:

11. The first casing part and the second casing part are fitted by fastening means to the main circuit card.

III. Lack of patentability

III.1 Lack of novelty according to art. 3, para. 2 Patent Act

The teaching of the litigious patent, according to claims 1 and 10, is anticipated in a manner prejudicial to novelty by document D6.

D6 was published on 21.12.1994 and has a priority of 21.6.1993. The litigious patent was applied for on 19.1.1995 with a priority of 25.4.1994. Thus, EP 630 174 (application number 94480044.0) has an earlier priority only made available to the public after the decisive date for the priority of the more recent application.

It is a European application claiming protection for the Federal Republic of Germany (cf. cover page of D6). As can be gathered from the enclosed register extract concerning this European patent application, a European patent was granted thereto, inter alia for Germany. Thus, this application constitutes relevant prior art in the sense of art. 3, para. 2 and which must be taken into account in the novelty examination.

In connection with the novelty prejudicing nature of D6, using the terminology of the litigious patent, but with the reference numerals of D6 and referring to the above feature analysis, the following submissions are made.

Features 1 to 3

In D6 a circuit card 310 (cf. figs. 1 to 3) is provided, which is held between a first casing part (frame 320) and a second casing part (casing 330). According to column 3, lines 7 to 10 of D6 the frame 320 and casing 330 can be constructed as separate parts. The casing surrounds the circuit card 310 on three sides and on the fourth side is located the casing 330 (cf. column 2, line 55 to column 3, line 10).

It is pointed out that claim 1 of the litigious patent merely indicates that the circuit card is held by the two casing parts. The claim does not define whether the casing parts embrace the circuit card laterally or from above and below.

Features 4 and 5

The circuit card 310 has a connecting element 315 (cf. particularly fig. 3), which is electrically connected to a second connecting element (coupling part 211) provided on a main circuit card (base card 200) (cf. fig. 1 and column 2, lines 52 to 54).

Features 6 and 7

According to column 2, lines 6 to 13 the object of the arrangement of D6 is to link incoming signals from a plurality of light waveguides 111 to 113 with a plurality of outgoing signals on other light waveguides 115 to 117. For this purpose electronic components 311 to 314 are provided on the circuit

card 310 and convert parallel electrical signals into serial signals for transmission in optical fibres and vice versa (cf. column 2, lines 49 to 52: "..... these components form circuits for converting parallel electrical signals to and from serial signals for transmission in optical fibres").

Thus, D6 has both a laser diode module and a photodiode module according to the above feature analysis. It is obvious that the digital signals pass from and to the main circuit card via the first and second connecting elements, because the connection between the circuit card 310 and main circuit card 200 would otherwise be superfluous. It is also stated in the description of D6 that parallel signals are transmitted via the connecting elements 315 and 211 (column 2, lines 52 to 54).

Feature 8

The first connecting element 315 of the circuit card 310 is constructed as a coupling part (cf. fig. 3).

Feature 9

The coupling part has at least one planar outer surface. The planar outer surfaces of the coupling part 315 are the planar surfaces of the lateral webs of coupling part 315 according to fig. 3.

Feature 10

The coupling element 315 with its planar outer surfaces is located on a main surface of the circuit card. Thus, the coupling element 315 with its lateral webs, which in each case have outer surfaces, are located on the lower main surface of the circuit card 310. Thus, the coupling element 315 is located with two planar outer surfaces on a main surface of the circuit board 10.

Thus, all the features of claim 1 of the litigious patent are anticipated in a manner prejudicial to novelty.

In connection with the independent claim 10 reference is made with respect to features 1 to 7 to the above statements. The characterizing feature that the first and second casing parts are fitted with fastening means to the main circuit card can also be gathered from D6.

Thus, one casing part, namely the frame 320, has fastening means 326, 327, 329 with which it is fastened to the main circuit card 200. The hooks 326 of the frame are inserted in corresponding openings 221 of the main circuit card 200 (cf. fig. 1).

Admittedly in fig. 1 only the frame 320 is fitted to the main circuit card, but not the casing 330. The reason for this is that in fig. 1 the frame 320 is constructed in one piece on the casing 330. However, it is also possible to construct the frame and casing as separate parts (cf. column 3, lines 8 to 10). It would be obvious to the average expert in this case that then the casing 330 is fitted with fastening means to the main circuit card (concerning the disclosure of a document, cf. Schulte, art. 3, marginal note 71).

Thus, the subject matter of claim 10 of the litigious patent has all its features anticipated in a manner prejudicial to novelty.

III.2 Lack of inventive activity

The subject matter of claims 1 and 10 is also not based on inventive activity.

Claim 1

1. Closest prior art

The closest prior art is considered to be document D1, which essentially coincides with JP-A-3-218134 cited in the litigious patent specification as the closest prior art. D1 discloses an electrooptical transmit-receive module having the features of claims 1 to 7 as set out in the above feature analysis.

Thus, particularly in fig. 1 and the associated description (column 6, line 46 to column 8, line 53 and figs. 5 and 6) an electrooptical transmit-receive module is described, which has a first casing part (retainer top 180), a second casing part (retainer bottom 181) and a circuit card 101 held between them (features 1 to 3).

Connecting elements (connectors 102, 103) are provided, which are connected to a main circuit card (user system card, cf. column 6, lines 46 to 48), which clearly have connecting elements for connection to the connectors 102, 103 (features 4 and 5).

There are also a laser diode module and a photodiode module (cf. lasers 120, 121 and photodiodes 122, 123, as well as conversion means 130, 131) (features 6 and 7). According to column 7, lines 39/40 there are also converters for converting optical signals into electrical signals. Between the not shown main circuit card (system card) and the connectors 102, 103 there is a parallel data transmission (column 6, lines 48/49).

2. Problem to be solved

Based on the closest prior art, the problem of the litigious patent is to constructionally improve the known electrooptical module, so as to improve the compactness and design flexibility of the module and reduce manufacturing costs.

3. Evaluation of the inventive activity

3.1. Combination of D1 and D3

On the basis of D1 and for solving the set problem, it was obvious to the expert to introduce the further differentiating features 8 to 10 in order to arrive at the subject matter of claim 1. He could directly gather these features from D3.

Figs. 1 and 2 of D3 disclose a unit having a main circuit card 1 and a circuit card 5, which are arranged parallel to one another. A unit 6 (cf. fig. 1) is placed on the circuit card 5. The connection between the circuit card 5 and main circuit card 1 is provided by two connecting elements (connector part 9) and mating connector part 10, cf. p 3, paragraph 4 of D3.

According to fig. 2 the connector part 9 is a coupling part. On the side of the latter associated with the circuit card it has a planar outer surface. The coupling part 9 is arranged with said planar outer surface on a main surface (the bottom) of the circuit card 5. Thus, all the features of the characterizing part of claim 1 are known from D3.

The expert would have also combined documents D1 and D3 for solving the set problem and would have readily arrived at the subject matter of claim 1. Thus, for solving the set problem of bringing about design improvements with respect to the closest prior art, the expert would have used as a basis arrangements in which two pcb boards (a circuit card and a main circuit card) are arranged parallel to one another and are electrically interconnected. Document D3 belongs precisely to such a prior art (cf. p 1, para. 1).

The expert would have also referred to D3, because it is based on a comparable problem with respect to said related structural arrangement of the elements, namely to ensure reduced space requirements for the overall arrangement (cf. p 1, para. 3). A reduction of the space requirement represents a design improvement.

The expert would have gathered from D3 that by constructing the connecting element of the circuit board as a coupling part, arranged with a planar outer surface on the circuit card, it is possible to bring about an easily

implementable connection between the circuit card and the main circuit card. Thus, the combination of the features of D1 and D3 would have directly led him to the subject matter of claim 1.

3.2. Combination of D1 and D5

It is additionally pointed out that a combination of D1 and D5 would have led the expert to the subject matter of claim 1. Thus, he can gather from D5 that in a unit arrangement with parallel pcb boards (pcb boards 20) there is a connection between the pcb boards by means of connecting elements (coupling elements 27, cf. fig. 4). According to fig. 4 the coupling element 27 has a planar outer surface with which it is placed on a main surface of the pcb board 20.

The construction of the connecting element of a circuit card as a coupling part placed with a planar outer surface on the circuit card is consequently a measure known from the prior art requiring no inventive activity to implement the same.

3.2. Combination of D1 and D8

It is also pointed out that at the time of the application it was generally known to directly fit to the surface of a pcb board electronic components using surface mounted technology (SMT). The connecting wires between the pcb board and the component to be fitted are omitted and the component is directly soldered to solder spots on the pcb board. The contacts are necessarily located on a flat outer surface of the components. Reference is made in exemplified manner to document D8.

According to D8, column 1, lines 14 to 20 surface mounted technology has been developed as the preferred procedure for fitting all ("virtually all") components to a pcb board. It was therefore obvious and required no inventive activity to construct coupling parts according to features 8 to 10 in SMT. It was merely necessary for this to have a planar outer surface of the coupling part and to directly apply it to a main surface of the circuit card.

Thus, a standard adaptation, resulting from the development of the prior art, to SMT would have directly led to constructing the connecting elements of the closest prior art in the form indicated in claim 1.

Claim 10

D1 also constitutes the closest prior for claim 10. The same problem is to be solved as indicated hereinbefore.

1. Combination of D1 and D2

The expert could solve this problem in an obvious manner by combining D1 and D2 to arrive at the subject matter of claim 10.

D2 has a circuit card 12, which is located in a casing forming a frame 22 (fig. 1). The frame 22 with the card 12 are mounted on a main circuit card 10 and between the circuit card and main circuit card an electrical connection takes place by means of a first and a second connecting elements (connecting elements 14, 16).

According to the characterizing feature of claim 10, casing 22 is connected by fastening means 40 (cf. fig. 3) to the main circuit card 10. Thus, the fastening feet 40 engage in corresponding recesses 48 of the main circuit card 10. Admittedly the casing in D2 is in one piece. However, it is obvious to the expert that in the case of a two-part construction of the casing 22, both casing parts are fastened to the main circuit card. Thus, claim 10 is not based on inventive activity.

The expert would have also combined documents D1 and D2, because D2 relates to a similar object with a comparable design of the circuit board and main circuit board.

2. Combination of D1 and D4

The expert would also arrive at the subject matter of claim 10 by combining D1 and D4. It is known from D4 to interconnect casing elements (power module casing 11, cooling body 10) and to fasten same mechanically using screws 17, 18 to a circuit board 16 (cf. fig. 1 and column 4, lines 6 to 25).

The cited prior art provides the expert with the teaching that the casing carrying the circuit card is to be fastened to the main circuit card. If the casing comprises two parts, it is obvious to fasten both casing parts with corresponding fastening means to the main circuit card. This involves no inventive activity.

The litigious patent must be revoked, because the independent claims 1 and 10 are not patentable and the other claims are dependent thereon. In view of the large number of subclaims comments are not made on each individual claim. If the patentee restricts the patent, the opponent will file additional submissions thereon.

Thus, the subject matter of the litigious patent lacks novelty and is not based on inventive activity, so that the petition to revoke the patent is well-founded.

Enclosures:

1 duplicate copy of the opposition brief

1 copy of the general power of attorney

Citations 1 to 8 in duplicate

Register extract for EP 630174

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